

# Enhanced Operational Availability AN/SQQ-32 Mine Hunting Sonar

Status: Transition

## PROBLEM / OBJECTIVE

Both U.S. combat forces and homeland shipping are increasingly exposed to mine warfare threats. The current littoral anti-mine warfare infrastructure is hampered by issues with Operational Availability of Sonar equipped Towed Bodies for identification and neutralization of this threat.

Issues with extended life use and maintainability of the interconnecting cables used in the SQQ-32 Towed Body Sonar Littoral Mine Warfare Sonar have decreased its availability for this critical function.

## ACCOMPLISHMENTS / PAYOFF

Analysis of failed cables led to the identification of the need for fundamental re-design of the cable. The existing cable proved incapable of repair and represented an unacceptable reliability risk.

The Navy's Center of Excellence (COE) worked with NAVSEA and PMS-490 to expedite a re-design of the AN/SQQ-32 Anti-Mine Warfare Hull Penetrator Cable .

### Process Improvement:

- Round vs. Rectangular Cable
- Spiral Lay for increased flexibility
- Altered Backshell to reduce interference during assembly
- Ceramic Insulator to accommodate High current electronic feedback events.

### Implementation:

The first prototypes of the newly designed cable were tested for fit and ease of routing for maintainability and reliability using a towed sonar array. Redesign completed and cable available for procurement and integration.

### Benefits:

- Cost for the existing cable \$15,263 each.
- Cost of the re-designed cable quoted \$11,000 per cable.
- With a total of 312 cables deployed throughout the fleet the newly designed cable could be replaced at a rate of 56 per-year for a total savings of \$1,330,056 per year.

Old Hull Penetrator Cable (HPC)



New Design HPC



### Higher Operational Availability attributed to:

- More Flexible Cable Assembly for maintenance
- Ceramic Insert to withstand occasional arc-over event
- Easier/Less Aggressive Installation Procedure due to better fitment in towed array system.

### Lower Cost of Ownership due to:

- Lower acquisition costs expected for new cables
- Fewer interruptions in operations due to cable failure.

## TIME LINE / MILESTONE

Start: Aug. 2003

Prototype Testing: Feb. 2004

## FUNDING

Initial Funding: \$50K from ONR

## PARTICIPANTS

COE EMPF  
NAVSEA CSS Panama City  
PMS 490